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1. Project Title: *Special Status Species Management at Conboy Lake NWR and Toppenish NWR*

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3. Project Objectives: The goal of this project is to improve management of several special status species existing on the refuges. Information obtained through the project will deliver adaptive management strategies and achieve several wildlife and habitat objectives defined in the Conboy Lake NWR Comprehensive Conservation Plan and Toppenish NWR Comprehensive Conservation Plan (CCP) (scheduled to be completed September, 2012) goals and objectives. We propose the following:

1. Conduct refuge-wide surveys for mardon skipper to establish baseline information and understand their distribution across the refuge; establish index sites to evaluate habitat enhancement for mardon skipper.
2. Purchase, deploy, and monitor water level data loggers to establish the relationship between habitat use by Oregon spotted frogs and water management on the Refuge and improve our understanding of fluctuations in Oregon spotted frog populations.
3. Install and monitor PIT tag arrays at Toppenish NWR for monitoring Mid-Columbia River Steelhead to determine residence time of parr steelhead on TNWR wetland units during winter and spring and their survival smolt stage relative to parr that remain in the mainstem of Toppenish Creek; compare travel times and survival to points downstream of smolt steelhead that transit wetland units on TNWR with those that stay in the mainstem of Toppenish Creek through the Refuge; and document potential use of wetland and mainstem habitat by steelhead kelts.

4. Methods: Surveys for mardon skipper will follow established protocols (Seitz et al. 2007) and will be conducted on all suitable habitat across the refuge. Photographs will be sent to Vince Harke (USFWS) for species verification. In addition to basic surveys, we will establish index sites within populations. These index sites will be visited annually to more efficiently monitor populations. Refuge-wide surveys and establishment of index sites would help us to evaluate mardon skipper habitat enhancement planned for 2012 and 2013. All mardon skipper populations will be mapped in ArcMap and analysis will be completed by refuge staff in cooperation with other Fish and Wildlife Service biologists in Western Washington Fish and Wildlife Office.

Water level loggers will be deployed in late summer 2012 in PVC pipes at the deepest points of 8 wetland units that represent important breeding areas for Oregon spotted frogs. Two aerial barometric pressure loggers will also be deployed to accurately calculate water levels. Data will be analyzed by refuge staff in partnership with Washington Department of Fish and Wildlife biologists.

The Yakama Nation will be trapping and PIT-tagging approximately 4000 steelhead parr and smolts annually through 2014. Adults will also be tagged at the Prosser Dam. Passive Integrated Transponder interrogation systems (PTIS) will be installed to detect steelhead entering and leaving wetland units at TNWR. Data analysis will be conducted by fish biologists in the Mid-Columbia River Fisheries Office and refuge biologists.

5. Project Implementation Timeline: Mardon skipper surveys will take place between May 15 and June 30 on days that meet protocol requirements. Index sites will be established at the beginning of this flight time in known populations and in other populations as they are found. Populations will be mapped as they are found and added to an existing GIS layer of known populations. Data will be stored in an appropriate Access database. Hard copies of datasheets will be stored at the refuge. Deliverables will include an annual report and a map of populations within the refuge completed by the end of 2012.

We will deploy water level data loggers in late summer 2012 when conditions allow. Data will be downloaded weekly and stored in an Access database. Water level loggers will be monitored throughout their 10 year lifespan. These data

will be available to evaluate relationships between water levels and habitat use by sandhill crane and Oregon spotted frogs and distributions of rare plants.

We plan to install the PTIS at TNWR as soon as funds become available. Data will be downloaded bi-weekly from arrays through 2014 and stored in an Access database.

A final report will be completed at the end of FY 2013, but water level logging and steelhead monitoring will be ongoing.

6. How does project meet funding priorities?
Several of the objectives in this project meet funding priorities for collecting baseline data, adaptive management feedback, equipment acquisition, and program leveraging.

Inventory Project / Collection of Baseline Data: Monitoring of water levels in wetland units utilized by Oregon spotted frogs has never been done. Surveys for mardon skipper, a Federal Candidate species, have not been conducted across all habitats within the Refuge.

Adaptive Management (AM): Water level logging provides necessary knowledge for refuge adaptive management, particularly for the Oregon spotted frog, a Federal Candidate species. All of the objectives relate to needs identified in the draft CCP and will allow us to monitor and analyze refuge management activities to provide feedback and perpetuate adaptive management. Understanding the distribution and habitat use of mardon skippers and Oregon spotted frog, the use of wetlands by steelhead smolts, and the effects of water levels all directly influence management decisions.

Purchase of equipment: Mardon skipper survey equipment will be purchased for this project and will allow conducting these surveys in the future. Water level data loggers will be purchased to initiate long-term water level monitoring at Conboy Lake NWR. Additional PIT tag array parts still need to acquired prior to placement at select locations within Toppenish NWR. All of these equipment purchases are identified as part of management actions in respective draft CCP's.

Leverage existing programs supporting surveys on refuges: Water level logging at Conboy Lake would be part of ongoing Oregon spotted frog project efforts completed in cooperation with the Washington Department of Fish and Wildlife, Washington Fish and Wildlife Office (FWS), Conboy Lake NWR, and several hundred volunteers. PIT tag arrays would be part of a long-term project to understand steelhead migration within the mid-Columbia region involving the Yakama Nation (funded by Bonneville Power Administration), Mid-Columbia River Fisheries Office (FWS), Washington Department of Fish and Wildlife, and NOAA.

7. Project justification:

1. **Demonstrates a connection to one or more CCP or HMP objective(s); or high priority survey from Part 1 of a refuge I&M Plan.**
    - Conboy Lake NWR Draft CCP – *Objective 2.1. Protect and Maintain Upland Meadow* - Upland meadow habitat provides habitat for the Mardon skipper. The Mardon skipper is a small butterfly that relies on native bunchgrasses, especially fescues, within upland meadows. Throughout much of its range, a great deal of upland meadow habitat has been lost or degraded by grazing, forest encroachment, invasive species and recreational activities. As a result of this habitat loss, Mardon skippers are restricted to four geographic areas, including two in Washington. Due to population declines, the Mardon skipper has been elevated to federal candidate and state endangered status, making the species of highest management concern in upland meadows. Mardon skipper populations are known to exist in two areas in upland meadows on the refuge, although extensive surveys for Mardon skippers across all appropriate habitats on the refuge have not been conducted. Under the CCP, the FWS will manage upland meadows for the benefit of Mardon skippers by reducing the cover of plants, shrubs and trees. Activities that may negatively affect Mardon skippers will be avoided, including heavy grazing and extensive burning. In areas with known populations of Mardon skippers, grazing, burning and the use of insecticides will be avoided altogether.

- Conboy Lake NWR Draft CCP – *Objective 1.1 Protect and Maintain Wet Meadow* . Oregon spotted frogs were historically found from southwestern British Columbia to northern California, throughout the Puget Trough and Willamette Valley and extending into the Cascades in Oregon and southern Washington. The Oregon spotted frog is now thought to be extirpated from up to 90% of its historic range. The refuge is home to the largest extant population of Oregon spotted frogs and the only population in Washington known to coexist with bullfrogs. The loss of historic populations and the ongoing threats to extant populations has elevated the Oregon spotted frog to being a candidate for federal ESA protection and a state endangered species, making it the highest management priority for the refuge. Under the CCP, the FWS will manage wet meadows to promote Oregon spotted frog breeding by reducing cover of undesirable vegetation, mainly reed canarygrass and woody vegetation, and by ensuring breeding areas are inundated long enough to allow sufficient time for tadpoles to metamorphose.
- Toppenish NWR Draft CCP – *Objective 1.2. Protect, Maintain, and Enhance Seasonal Wetlands - Objective 1.4. Protect and Maintain In-Stream Habitats*. Juvenile Mid-Columbia River steelhead, federally listed as threatened, generally migrate downstream through TNWR from about mid-March to mid-May, but are present as early as mid-December and into June. Steelhead enter refuge wetlands during spring flooding and through unscreened water diversions. Although steelhead juveniles in wetland units could suffer stress or mortality from stranding, high water temperatures, low dissolved oxygen, or depredation), use of off-channel wetlands for overwinter and rearing migrations has been demonstrated for some salmonids. Major wetland management issues are unscreened water diversions at the head of Gamble Ditch, Lateral Creek and Snake Creek. Additional issues surround the inadequate screens at the Toppenish Creek pumps.

2. **Benefits the science information needs guiding resource management for one or more refuges.**
    - Mardon skipper information will be utilized by FWS to help determine status within its current range to help determine listing priorities. Water level logging will help the refuge determine an Oregon spotted frog adaptive management scheme which could be utilized at other active Oregon spotted frog sites. Information obtained from migrating steelhead will be part of a large, on-going steelhead project effort within the Yakima Valley and Mid-Columbia Basin.
3. **Addresses priorities of a refuge(s) (goals/objectives) and other FWS programs (Fisheries, Migratory Birds, T&E species), LCCs, or conservation partners.**
    - Other programs involved include Endangered Species (FWS), NOAA, Fisheries (FWS), WDFW, Yakama Nation.
4. **Focuses on refuge or refuge complex management decisions that affect substantial portions of an entire species' population during critical life-cycle events.**
    - Any adaptive management decisions made on either refuge has the potential to affect substantial portions of Mardon skipper, Oregon spotted frog, and steelhead populations. Conboy Lake NWR supports the largest extant population of Oregon spotted frogs and the only population in Washington known to coexist with bullfrogs. Mardon skippers are restricted to four geographic areas, including two in Washington, one of which is Conboy Lake NWR.
5. **Addresses management controversy and/or time urgency, where applicable.**
    - There is great management concern regarding Oregon spotted frogs at Conboy Lake NWR. Water level information will help us better understand critical water management periods during their life cycle and provide an overall better water management program.
6. **Focuses on priority issues identified by the National I&M Program.**
    - **Project supports two Federally listed species (Oregon spotted frog, 2013; Steelhead) and provides water quantity information used to help make habitat management decisions.**

8. How will project deliverables be used for refuge decision making:

Map of areas occupied by mardon skipper guide management activities; knowledge of populations affects scale and method of pine removal or vegetation management.

Understand water levels in response to management, OSF habitat use & population fluctuations (through egg mass surveys) in response to water levels – feedback to water management

Understand how steelhead travel through refuge – install fish screens if necessary, adjust water management when possible

9. Statistical assistance or GIS support: All project objectives will be conducted in cooperation with resources available within FWS and biologists from WDFW. We do not foresee needing additional statistical assistance or GIS support.

10. Requested funding

Total biotech salary	$16,290
Installation of PIT tag detector arrays at Toppenish	$13,000
Mardon skipper equipment	$300
Funding for publications	$2,000
Pollinator monitoring equipment	$425
Water level monitors	$8,062
Budget Total	$40,077